

Annals of the Entomological Society of America
104(5): 1012-1020

Context-Dependent Stridulatory Responses of *Leptogenys kitteli*
(Hymenoptera: Formicidae) to Social, Prey, and Disturbance Stimuli

Ciu, Y. K. ; Mankin, R. W. ; Lin, Chung-Chi

Abstract

Individual *Leptogenys kitteli* (Hymenoptera: Formicidae) workers produce stridulatory pulses at faster rates after exposure to prey larvae placed nearby the nest and after air-puff disturbances at the nest entrance than during unstimulated social interactions within the nest. Workers produce chirps (trains of stridulatory pulses) at faster rates after exposure to prey larvae than during unstimulated social interactions, including groups of chirps (bursts) where the intervals between chirps decrease below 60 ms. Such bursts do not occur in unstimulated social interactions. Chirp bursts with intervals 10 ms (disturbance bursts) occur immediately after air puffs at the nest entrance. Disturbance bursts are not observed after exposure to prey larvae or during unstimulated social interactions. The rates of disturbance bursts decline rapidly within 10 s after an air puff, whereas episodes of chirp bursts extend over periods of 30 s or longer when groups of ants are moving prey larvae into the nest. The differences in the rates of stridulatory pulses and chirps and in the durations of stridulatory activity observed in the context of different types, intensities, and durations of stimulation contribute to evidence that stridulation has a significant communicatory role in colony activities of many ant species, even in genera, such as *Leptogenys*, in which a stridulatory organ has not been retained in every species. A better understanding of how ants produce and interpret vibrations may lead to new methods that to improve attractiveness of baits, or repel ants from electrical equipment housings where opportunistic colonies frequently nest.

Key words : Ponerinae; Communication; Behavior; Evolution